TKACHEVA, R.E.; OGORODNEVA, V.I.; DUBOVSKAYA,M.V.,;MARKOVA,Ye.I.,;GRIGOR'YEV,N.P.;
POPOVA, A.I.; ROZIN, M.S.; OPALEV, A.F.; Prinimali uchastiye:
ANTONOVA, L.N.; MALAYEV, A.A.; BYKHOVER, N.A., red.; MAKEYEV,
V.I., red. izd-va; GUROVA, O.A., tekhn. red.

[Concise handbook on mineral resources in capitalist countries;
America] Kratkii spravochnik po mineral'nym resursam kapitalisti-
cheskikh stran; Amerika. Pod red. N.A.Bykhovera, M.V.Dubovskoi i
A.F.Opaleva. Moskva, Gosgeoltekhizdat, 1961. 154 p.

(MIRA 15:6)

1. Russia (1923- U.S.S.R.) Vsesoyuznyy geologicheskiy fond.
(America--Mines and mineral resources)

TKACHEVA, R.E.; OGORODNEVA, V.I.; DUBOVSKAYA, M.V.; MARKOVA, Ye.I.;
GRIGOR'YEV, N.P.; POPOVA, A.I.; ROZIN, M.S.; OPALEV, A.1.;
KIRILLOVA, L.D.[translator]; BYKHOVER, N.A., red.;
SOKOLOVSKAYA, Ye.Ya., red. izd-va; BYKOVA, V.B., tekhn. red.

[Brief manual on the mineral resources of capitalist countries;
Europe]Kratkii spravochnik po mineral'nym resursam kapitalisti-
cheskikh stran; Evropa. Pod red. N.A.Bykhovera, M.V.Dubovskoi
i A.F.Opaleva. Moskva, Gosgeoltekhizdat, 1962. 118 p.
(MIRA 15:8)

1. Russia (1923- U.S.S.R.)Vsesoyuznyy geologicheskiy fond.
(Europe, Western—Mines and mineral resources—Handbooks, manuals,
etc.)

AL'TGAUZEN, M.N.; GINZBURG, I.I.; DUBOVSKAYA, M.V.; YERSHOV, A.D.;
MELKOV, V.G.; OS'KIN, N.I.; KOCHKOVA, Ye.V.; STRAKHOV, N.M.;
KHRUSHCHOV, N.A.; SHMANECHKOV, I.V.; SHCHERBAKOV, D.I.;
IANSHIN, A.L.; AMIRASLANOV, A.A.; GOTMAN, Ya.D.; ZUBREV, I.N.;
KOROVYAKOV, I.A.; ORLOVA, P.V.; PASOVA, F.G.; SAAKYAN, P.S.;
TERENT'YEVA, K.F.; SHANOBSKII, L.M.; CHERNOSVITOV, Yu.L.;
SHCHERBINA, V.V.

IUrii Konstantinovich Goretskii; obituary. Sov.geol. 4 no.12:
153-155 D '61.   (MIRA 15:2)
        (Goretskii, Iurii Konstantinovich, 1912-1961)

TKACHEVA, R.E.; OGORODNEVA, V.I.; DUBOVSKAYA, M.V.; MARKOVA, Ye.I.;
GRIGOR'YEV, N.P.; POPOVA, A.I.; ROZIN, M.S.; OPALEV, A.F.;
Prinimali uchastiye: ANTONOVA, L.N.; MALAYEV, A.A.;
BYKHOVER, N.A., red.; NEKHODTSEV, N.A., red.; PANOVA, A.I.,
red.izd-va; IVANOVA, A.G., tekhn. red.

[Brief manual on the mineral resources of capitalist countries;
Africa, Australia and Oceania]Kratkii spravochnik po mineral'-
nym resursam kapitalisticheskikh stran; Afrika, Avstraliia i
Okraniia. Moskva, Gosgeoltekhizdat, 1962. 197 p.
                                        (MIRA 16:3)
1. Russia (1923- U.S.S.R.)Vsesoyuznyy geologicheskiy fond.
        (Africa--Mines and mineral resources)
        (Australia--Mines and mineral resources)
        (Oceania--Mines and mineral resources)

USOV, P.G.; DUBOVSKAYA, N.S.

Study of the processes of hardening of ash lime binders by X-ray analysis and by means of an electron microscope. Izv.TPI 111:70-76 '61.
(MIRA 16:9)

1. Predstavleno professorom doktorom khimicheskikh nauk A.G. Strombergom.
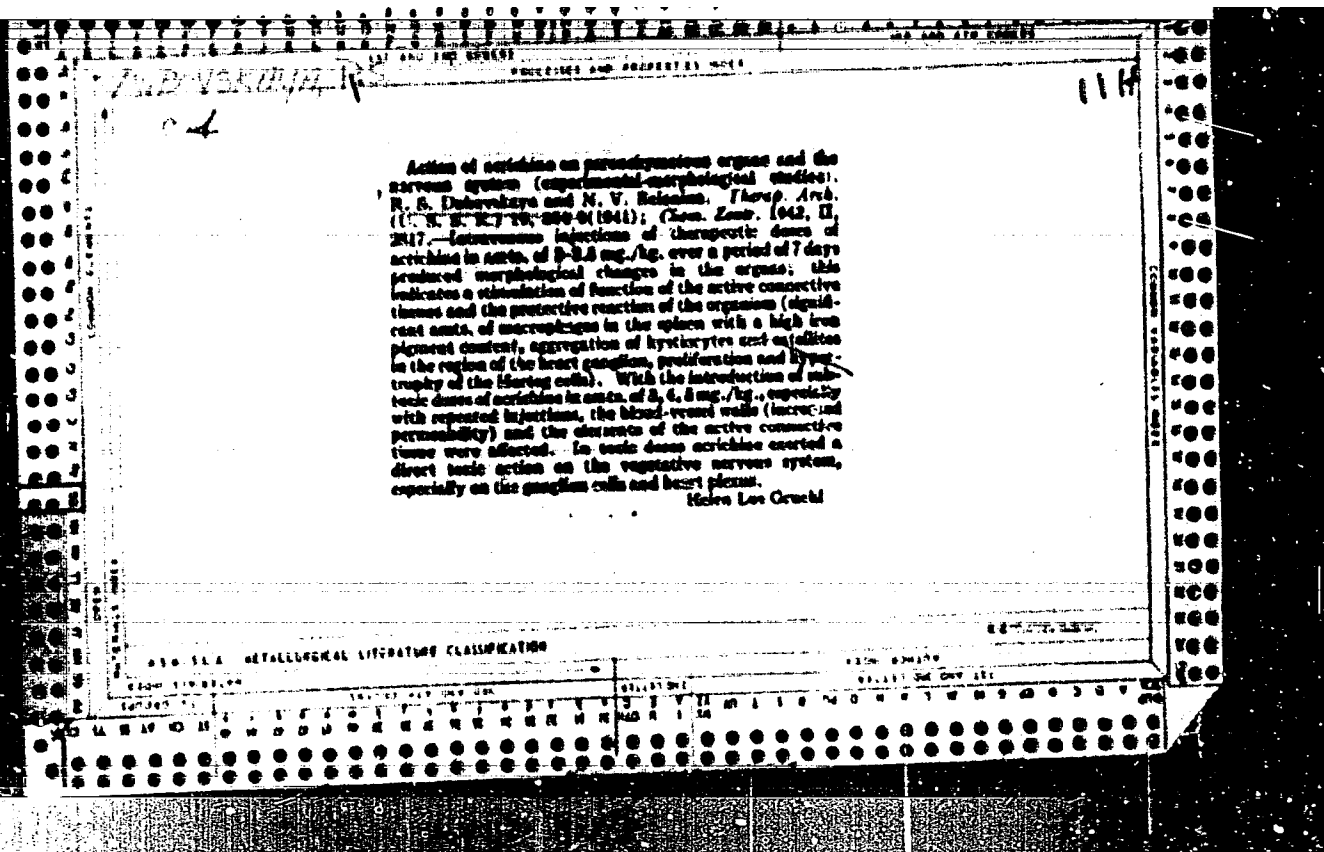
(Binding materials) (Lime)

DUBOVSKAYA, K.S.

The phenomenon of potentiation of plasmocide with Pyrrole Blue in the treatment of malaria in humans. K. S. Dubovskaya and V. B. Rosenberg. Z. Mikrobiol. Epidemiol. Immunobiol. (U. S. S. R.) 18, 231 6 (in German 1941)1917).— Doses of 0.03 g. of plasmocide 3-4 times daily for 2 days led to a stoppage of attacks in 6 out of 29 cases, and disappearance of plasmodia in 2 out of 10 cases. The intravenous injection of 5 cc. of 0.5% Pyrrole Blue together with plasmocide treatment led to a stoppage of attacks on the second day in 16 out of 20 cases and disappearance of plasmodia in 12 out of 17 cases.

Treatment of malaria in pregnant women with acridine preparations. B. N. Rubinshtein and P. S. Dolgopolsky. Klin. Med. (U. S. S. R.) 15, 814-18(1937); Chem. Zentr. 1938, I, 2341; cf. C. A. 31, 7119.—Good results were obtained by the treatment of 20 malarial patients during pregnancy with atebrin and Acridine No. 8 (dihydrochloride of 2-methoxy-6-chloro-9-diethylaminobutylaminoacridine). M. G. Moore

Action of acrichine on parasympathetic organs and the nervous system (experimental morphological studies). R. S. Dubovskaya and N. V. Belenina. *Therap. Arch.* (U. S. S. R.) 19, 360-6 (1941); *Chem. Zentr.* 1942, II, 2617.—Intravenous injections of therapeutic doses of acrichine in amts. of 0-0.5 mg./kg. over a period of 7 days produced morphological changes in the organs; this indicates a stimulation of function of the active connective tissues and the protective reaction of the organism (significant amts. of macrophages in the spleen with a high iron pigment content, aggregation of hystiocytes and satellites in the region of the heart ganglion, proliferation and hypertrophy of the Marteg cells). With the introduction of subtoxic doses of acrichine in amts. of 3, 4, 5 mg./kg., especially with repeated injections, the blood-vessel walls (increased permeability) and the elements of the active connective tissue were affected. In toxic doses acrichine exerted a direct toxic action on the vegetative nervous system, especially on the ganglion cells and heart plexus.

Helen Lee Gruehl

DUBOVSKAYA, T.P., kand. med. nauk (Astrakhan')

Organization of the medical evaluation of permanent disability among
collective farm workers. Zdrav. Ros. Feder. 3 no.4:11-16 Ap '59.
    (STAVROPOL TERRITORY—DISABILITY EVALUATION)   (MIRA 12:4)
       (COLLECTIVE FARMERS—PENSIONS)

KORSHUNOV, I.A.; NOVOTOROV, N.F.; AMBITSKAYA, R.V.; OKROKOVA, I.S.;
PESTUNOVICH, N.A.; DUBOVSKAYA, V.N.; LEONOV, M.R.; GLAZOV,
V.M.

Synthesis of organic compounds tagged with radioactive carbon. Radiokhimiia 1 no.6:728-733 '59. (MIRA 13:4)
(Carbon--Isotopes) (Organic compounds)

VASIUKOVA, A.N.; DUBOVSKAIA, Z.A.; ZHUKOVA, A.D., otv. red.;
    URYVALOVA, N.I., red.

[Technical specifications for paint materials in two
volumes] Tekhnicheskie usloviia na lakokrasochnye ma-
terialy [v dvukh tomakh]. Moskva, Khimiia, 1965. 2 v.
                                        (MIRA 18:12)

DUBOVSKIY, A.A.

Apparatus for double contrast roentgenography of the large
intestine. Zdrav.Bel. 8 no.11:88-89 N '62.   (MIRA 16:5)

1. Iz kafedry terapii (zav. - prof. A.D. Adenskiy) i khirurgii
(zav. - prof. A.M. Boldin) Belorusskogo instituta usovershenst-
vovaniya vrachey (rektor Savchenko) i Minskoy oblastnoy klini-
cheskoy bol'nitsy (glavnyy vrach M.I. Kotovich).
                         (INTESTINES--RADIOGRAPHY)

DUBOVSKIY, A.

Conference of inventors and efficiency promoters of the Ministry
of Public Health of the Ukrainian S.S.R. Zdrav. Bel. 9 no.3:
92-93 Mr'63   (MIRA 16:12)

SAVCHENKO, N.Ya., dotsent; DUBOVSKIY, A.A.

The AS-4K angiograph (synchronous 4-casette angiograph).
Urologiia no.4:60-62 '63.   (MIRA 17:10)

1. Iz kafedry urologii (zav.- prof. A.I. Mikhel'son)
Belorusskogo instituta usovershenstvovaniya vrachey i Minskoy
oblastnoy klinicheskoy bol'nitsy.

SHTYL'KO, A.A.; DUBOVSKII, A.B., red.; MYAGKOV, M.M., red.; SHIKIN, S.T., tekhn. red.

[Problems in trade-union work; consultations, comments and answers to questions] Voprosy profsoiuznoi raboty; konsul'-tatsii, kommentarii, otvety na voprosy. Moskva, Izd-vo VTsSPS Profizdat, 1961. 399 p.   (MIRA 15:1)
(Trade unions)

DUBOVSKIY, B. G.

"Measuring Resonance Absorption of Neutrons in the Reactor of the Atomic Power Station," by Z. I. Gromova, B. G. Dubovskiy, A. V. Kamayev, and V. V. Orlov. Atomnaya Energiya. Vol 2. No 5, May 55, pp 411-415

The work notes that one of the most important quantities determining the possibility of developing a nuclear chain reaction in a uranium-moderator system is the probability of resonance absorption of U^{238} neutrons during their moderation from fission to thermal energies. "Until now, there has not been a sufficiently reliable calculation of this probability for heterogeneous reactors. To be reliable, measurements should be made directly in the reactor lattice."

Discussed are methods of experimentally determining resonance absorption and methods of evaluating neutron leakage, and uranium fission and neutron capture in the resonance region.

Measurements made on the reactor of the Atomic Power Station are given. The resonance absorption probability was found to be 0.900 ± 0.01 (U)

Sum in 1451

DUBOVSKIY, B.G.

..SUBJECT	USSR / PHYSICS	CARD 1 / 2	PA - 1481
AUTHOR	KRASIN,A.K., DUBOVSKIJ,B.G.		
TITLE	A Physical Beryllium Reactor.		
·PERIODICAL	Atomnaja Energija, 1, fasc. 4, 147-148 (1956)		
	Issued: 10 / 1956 reviewed: 11 / 1956		

For the study of the physical parameters of a reactor using Be as accelerator
the physical reactor BRF with metallic beryllium was put into operation in the
building of the atomic power works of the Academy of Science in the USSR in

1954. As fuel U_3C_8 powder with 10% U^{235} was used. The reactor is composed of
160x160x40 mm diameter Be-blocks and has the shape of a 960 mm high cylinder
with a diameter of 1040 mm . This reactor contains vertical channels which form
a rectangular lattice with 107x64 mm spacing, and besides there are 108 hori-
zontal channels. In the center of each elementary cell there is a channel of
157 mm diameter which is surrounded by 6 channels. The fuel is in a tubelike
case. The reactor is controlled by means of two rods of 960 mm length and
8,2 mm diameter. Furthermore, there are 8 Cd rods of equal size for the pro-
tection against accidents. The course of the chain reaction is controlled by
boron-proportionality counters and ionisation chambers. The personnel is protec-
ted by a concrete wall of 1 m width.
The critical mass corresponding to the various varieties of the multiplying
medium was attained by the successive charging of the elements beginning from
the center in the direction of the periphery. For reasons of safety a Po+Be-

neutron source with $\approx 10^6$ neutrons per second was fitted in the interior of the reactor. A waterless variety of the uranium-beryllium reactor was realized by the charging of 6 elements. Graphite was introduced into the central channels of the cells, into the interior tubes of the elements, and into the horizontal channels.

After 366 uranium elements were charged (6,66 kg U^{235}) the system became critical. On the occasion of transition to the reactor without reflector the upper layers of the beryllium blocks were removed. The critical mass in this case was 11,73 kg U^{235}. For the same case the variety of a reactor with thermocolumn in the center was realized.. The data corresponding to the various varieties are shown in a table. If there is a thermocolumn in the center of the reactor the density of the thermal neutrons is 4 times as great as the average density of the neutrons in the active zone. However, in the case of the variety without thermocolumn with reflector the maximum density of the neutrons exceeds the average density by 13%.

INSTITUTION:

DUBOVSKIY, B. G.

Category : USSR/Nuclear Physics - Nuclear engineering and power   C-8

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 711

Author   : Krasin, A.K., Dubovskiy B.G., Doil'nitsyn, Ye.Ya., Matalin, L.A.,
            Inyutin, Ye.I., Kamayev, A.V., Lantsov, M.N.,
Title   : Study of the Physical Characteristics of an Atomic Electric Station Reactor.

Orig Pub : Atom. energiya, 1956, No 2, 3-10

Abstract : A graphite-water research reactor, in which the cell construction was nearly
            equal to the cell of the reactor of an atomic electric station, was built to
            check the calculation results for the latter reactor. The research reactor
            was a cylinder 190 cm high and 260 cm in diameter. The fission material used
            was uranium protoxide and oxide with 10% U^{235} enrichment. The critical mass
            (M_{cr}) was 6.3 kg U^{235}, which was in good agreement with the calculated value
            ($M_{cr} = 5.35 -- 7.4$ kg U^{235}) calculated with a procedure previously checked
            experimentally only with a uranium-graphite lattice with a small content of steel
            and water. The critical mass was calculated for the reactor of the atomic
            electric station for two cases: with and without water in the working channels.
            The results obtained are in good agreement with the calculations.
                Experiments were made on the calibration of boron rods and on the determina-
            tion of the excess reactivity. The dependence of the effectiveness of the
Card   : 1/2

Category : USSR/Nuclear Physics - Nuclear engineering and power   C-8

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 711

absorbing boron rod on the depth of its insertion in the reactor was in-
vestigated. Experiments on the determination of the controlling ability
of the rod have established that the surrounding rods affect strongly the
absorbing ability of the rod. A study of the character of the curve for the
decrease in power with time under scram conditions was made to determine the
operating time of the scram rods.
 A mechanical neutron selector was used to study the neutron spectrum, and the
distribution of the thermal neutrons was found to be in good agreement with
the theoretical curve when the effective temperature of the neutron gas was
assumed to be approximately 100^0 higher than the temperature of the core. The
temperature of the neutron gas was then determined with the aid of boron rods,
and good agreement was obtained here with the results of the measurements
made with the selector. The curves of the cadmium ratios versus the reactor
radius showed that 8.3% of the fissions in U^{235} occur in the region above
the cadmium.

Card   : 2/2

AUXILIARY PHYSICS REACTOR. A. K. Krasin and G.
Lebedeva. Soviet J. Atomic Energy 4, 905-911(1958)

In order to study the physical properties of a fast
(fast?) reactor, such a reactor was put into operation at the
USSR atomic electric power station. The parameters of
this reactor are listed. (B.J.N.)

Distr: 4E3c 2 cys/4E2b(v)

The physical characteristics of a nuclear power reactor.
A. K. Krasin, B. G. Dubovskii, B. J. Dolgadarin,
L. A. Matalin, B. L. Ioyutin, A. V. Kamaev, and M. N.
Lantsov. *Jadernal Energy* 1, 33-8 (1957). —To assist in the
calcn. of phys. parameters of a large power reactor, tests
were carried out on a smaller prototype. It was a graphite-
moderated H₂O-cooled reactor with fuel elements consisting
of 2 concentric stainless-steel pipes with powd. UO₄ (10%-
enriched) fuel in the annular space and H₂O in the center.
Bundles of 7 of these elements were placed 1 at a time in the
spaces in the graphite lattice, starting at the center, and
criticality was reached for 58 bundles. In the absence of
H₂O, 101 bundles were needed. The excess reactivity with
85 bundles in place was compensated with 6 inner B control
rods, 4 outer ones, and 1 for automatic control. The excess
reactivity was measured by the time required for doubling
the power level when a rod was withdrawn 1 cm. The
inner and outer rods were calibrated sep. The increase in
reactivity which would be caused by complete flooding with
H₂O, as might happen in an accident, was detd., and it was
found that the available control rods (another 13 in addn to
those mentioned) could compensate for this. The probabil-
ity .... of neutrons by U²³ was 0.006

8
3

$P_{u}\beta_{o}vsK_{i}y, B.G.$

ABSTRACT: Method of measuring: An uranium-converter was used as source of
the neutrons of the fission spectrum. It was fitted in the flux
of the neutrons coming out of the thermal column of a reactor (in
a nuclear power plant). The converter was surrounded alternatingly
by balls of beryllium and graphite. The increase of neutrons in
beryllium was measured by means of a neutron counter. Each measur-
ing series consisted of three measurements: measuring by means of
a beryllium ball, measuring ay means of a graphite ball, and
measuring of the background by means of cadmium with the bundle
of the thermal neutrons being covered. In a similar way ex-
periments were carried out with Po-α-B- and Po-α-Be-neutron
sources.

Measuring results: The increase of neutrons in the beryllium balls
was computed from the cross sections of the reactions (n,2n),
(p,n), and (n,α). The influence of the reaction (γ,n) may be
neglected. The counting intensities of the neutrons are in con-

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PA - 2313

On the Measuring of the Cross Section of the Reaction

$Be^9(n,2n)Be^8$ for Fission Neutrons.

nection with the cross sections of the reactions (n,2n) by the

relation $n = n_0 e^{Nl(\sigma_{n,2n} - \sigma_{n,\alpha})}$. In this connection n and n_0

denote the counting intensities with a beryllium ball and a graphite ball, respectively; N denotes the number of the beryllium nuclei per cm^3, l - denotes the average length of path in the spherical beryllium layer. l is considerably greater than the thickness of the beryllium layer d = R - r. The transport length ($\lambda = 7,3$ cm) was determined from the average scattering cross section for beryllium for neutrons with energies of 2 to 8 MeV in consideration of the anisotropy of the scattering ($\sigma \sim 1,5 \pm 0,3$ barn). Experimental conditions, the average values of the quantity $\epsilon = (n - n_0)/n_0$ and the difference of the cross sections $\sigma_{n,2n} - \sigma_{n,\alpha}$ computed are shown in a table.

It is found here that $\sigma_{n,2n} = (73 \pm 20).10^{-27} cm^2$.

The comparison of the cross sections obtained with the shape of the spectrum of the sources indicates that the fission neutrons with more than 4 MeV contribute the main part to the

Card 2/3

PA - 2313

On the Measuring of the Cross-Section of the Reaction
$Be^9(n,2n),Be^8$ for fission Neutrons.

increase. Qualitatively this indicates a rapid increase of the
difference of the cross sections of the reactions (n,2n) and
(n,α) at an increasing energy of the neutrons.
(3 illustrations and 1 table).

ASSOCIATION: Not given.
PRESENTED BY:
SUBMITTED: 19.9.1956.
AVAILABLE: Library of Congress.

Card 3/3

DUBOVSKIY, B. G.

AUTHOR: GROMOVA,Z.I.,DUBOVSKIY,B.G., KAMAYEV,A.V., ORLOV,V.V.   84-5-1/22

TITLE: Measurements of Neutron Resonance Absorption in the Reactor of the
Atomic Power Plant. (Izmereniye rezonansnogo pogloshcheniya neytro-
nov v reaktore atomnoy elktrostantsii, Russian)

PERIODICAL: Atomnaia Energiia, 1957, Vol 2, Nr 5, pp 411-415 (U.S.S.R.)

ABSTRACT: According to three different formulae, which, besides the known or
estimated characteristic number, contain the ratio

$\frac{R}{T}$ between the number of resonance-captured neutrons in a fuel

element in 238-U and the number of captured thermal neutrons, as well
as by measuring this ratio the probability $1 - \varphi$ of resonance
capture on the occasion of the moderation of a fast neutron was com-
puted.
The ratio of the uranium-graphite lattice was carefully maintained in
an experimental channel while measuring was carried out by comparing
the activation of an uranium sample enclosed in a cadmium shell and
of an open one, as well as by comparing

$\frac{R}{T}$ of uranium and a resonance indicator with known thermal capture

cross section and resonance integral.

Card 1/2

Measurements of Neutron Resonance Absorption in the Reactor of the
Atomic Power Plant.

Results, which amount to an average of $\gamma = 0.900 \pm 0.015$ for the
reactor of the Soviet Nuclear Power Plant, agree well with one
another as well as with theoretically computed results. (2 Illu-
strations, 3 References).

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED: 2.11.1957
AVAILABLE: Library of Congress

Card 2/2

KRASIN, A.K.; DUBOVSKIY, B.G.; DOILNICYN, E.Ja.; MATALIN, L.A.; KAMAJEV, A.V.;
LANCOV, M.N.; KRATOCHVIL, G., int. [translator]

Examination of physical properties of a nuclear reactor of an electric
power plant. Jaderna energie 3 no.2:33-38 F '57.

KRASIN, A.K.; DUBOVSKIY, B.G.; BORAL, L., ins. [translator]

Physical beryllium reactor. Jaderna energie 3 no.2:62-63 F '57.

DUBOVSKIY, B. G.

AUTHORS: Dubovskiy, B.G., Kitayev, V.Ya.   8S -1-11/18

TITLE: Use of Inertia-Free Thermo-Batteries for the Measurement of Large
              Neutron Currents in Nuclear Reactors (O primenenii maloinertsionnoy
              termobatarei dlya izmereniya bol'shikh neytronnykh potokov v
              yadernykh reaktorakh)

PERIODICAL: Physics and Thermotechniques of Reactors (Fizika i teplotekhnika
              reaktorov), Supplement Nr 1 to Atomnaya energiya, 1958(USSR)

ABSTRACT: For the production of the thermopile Chromel-Kopel thermocouples
              were used. From these materials thin foils ($d = 0.05$ mm, width
              $= 3$ mm) were rolled out and welded together by the contact welding
              method, the welded surface amounting to ~ 2 mm^2. Small china tubes
              ($d_i = 4$ mm, $1 = 80$ mm) were used as insulators, into which 14
              thermocouples were fitted. Such a tube is a section of the thermo-
              pile, which consists of a total of 6 sections. ($d = 40$ mm,
              $1 = 110$ mm). Each point of contact is covered with U_3O_8, viz. with
              1.8 mg U_3O_8 each. The linearity of the device was measured with
              satisfactory result within the range of from 10^{10} to 10^{14} n/cm^2.sec.
              By an increase of the U-235 content and the number of thermocouples
Card 1/2   the lowest measuring limit may be reduced to 10^9 n/cm^2.sec. The

Use of Inertia-Free Thermo-Batteries for the Measurement
of Large Neutron Currents in Nuclear Reactors

89 -1-11/18

time constant $\tau_{1/2}$ of the thermopile is about 2 s in the case of
neutron fluxes of 10^{12} n/cm^2.sec.
Such piles may be expected to be of particular efficacy in reactors
cooled by liquids (viz. with high specific power).
A pile consisting of 144 elements yielded an electromotive force
of ~ 3 V. The power developed by such a pile amounts to about 0.2 W.
The degree of efficiency, however, is very low, i.e. less than
0.1%. There are 5 figures and 3 non-Slavic references.

AVAILABLE: Library of Congress

Card 2/2   1. Thermopiles-Applications   2. Neutron currents-Measurement

AUTHOR: Dubovskiy, B.G.   89-4-4-6/28

TITLE: The Safe Starting of a Reactor With Zero Energy (Bezopasnyy pusk reaktorov s nulevogo urovnya moshchnosti)

PERIODICAL: Atomnaya Energiya, 1958, Vol. 4, Nr 4, pp. 365-366 (USSR)

ABSTRACT: Zero energy of a reactor is the power developed by the reactor while it is in the subcritical state. In this case reactor power is determined by the fissions caused by prompt neutrons or by neutrons originating from a neutron source in the reactor. In the Russian Atomic Electric Power Station the power is about 10^{-7} W after all safety rods have been conveyed in. This power is due to prompt uranium fission. It is not possible to record so low a power. The lowest measurable power is 200 W. Thus, a range of $\sim 5 \cdot 10^9$ remains beyond control. The uncontrollable increase of power within the range of from 10^{-7} to 200 W is, however, very dangerous, as a supercritical state of $\Delta k \approx 0.7\%$ already leads to a blowing-up of the reactor. In order to simplify starting an inactive Sb + Be-source was introduced into the reactor. As a consequence of the reactivation

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The Safe Starting of a Reactor With Zero Energy   89-4-4-6/28

of Sb, a photoneutron source with about $\sim 4.10^7$ n/s forms. In this way the uncontrollable range is reduced by the factor $\sim 5.10^5$.

The basic idea underlying this method which warrants an increase of power without danger for the power level adjusted, consists in the fact that those parts of the boron rods which are equivalent with respect to effectivity are put into action in stages or uniformly. There are 1 table, and 2 Soviet references.

SUBMITTED: October 29, 1957

1. Reactors--Power   2. Reactors--Hazards   3. Reactors--Performance
4. Reactors--Control systems

Card 2/2

Dubovskiy, B.G.

Dubovskiy, B. G.

Dubovsky, B. B.

21(9), 5(3)   SOV/89-6-5-9/33

AUTHORS: Dubovskiy, B. G.,   Lantsov, M. N.

TITLE: On the Problem of the Use of Organic Compounds as Moderators
              in Nuclear Reactors (K voprosu o primenenii organicheskikh
              soyedineniy v kachestve zamedliteley v yadernykh reaktorakh)

PERIODICAL: Atomnaya energiya, 1959, Vol 6, Nr 5, pp 563-564 (USSR)

ABSTRACT: In a small water-moderated and water-cooled reactor various
              organic substances are investigated for the purpose of de-
              termining their properties when used as moderator instead
              of water. The fuel elements (highly enriched uranium) were
              placed in a triangular lattice the parameters of which are
              tabulated. The critical state is attained by raising the
              moderator level in the reactor tank. The radius of the active
              zone remained the same in all experiments. At the sides and
              at the bottom the active zone was surrounded by a reflector
              made from iron and from a mixture of iron+moderator. As
              upper reflector the ends of the fuel elements were used,
              which exceeded the height of the active zone in the critical
              arrangement by about the double. The critical mass, the
              rate of reactivity increase in the case of an increasing modera-
Card 1/3   tor level, and the Laplacian distribution x^2 of the thermal

SOV/89-5-5-9/33

On the Problem of the Use of Organic Compounds as Moderators in Nuclear Reactors

neutron were experimentally determined. The known methods were employed for the purpose of measuring the quantities mentioned. For the following moderators measuring results are tabulated: Water, $(CH_3)_2CHCH_2CH_2OH$, $CH_2(CH_2)_4CO$, $C_6H_5CH_2OH$, $CH_3C_6H_5$, 87% HCOOH, mixture of various organic compounds. The following data are given: 1) Ratio between hydrogen and U^{235}-concentration. 2) Critical mass. 3) Ratio of the critical volume of the active zone, referred to normal water. 4) K_∞. 5) τ. 6) Number of hydrogen nuclei in 1 cm^3. 7) Number of moderator nuclei in 1 cm^3. 8) Density and boiling point. The following conclusions may be drawn from measuring results: 1) If, in a water-cooled and water-moderated reactor, organic liquids are substituted for water (as moderators), this entails no essential increase of the critical volume of the reactor. The slight increase of the volume of the active zone is due only to greater neutron leakage. 2) The increase of neutron age in organic liquids develops more slowly than the decrease of hydrogen concentration in these liquids.

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SOV/89-6-5-9/33

On the Problem of the Use of Organic Compounds as Moderators in Nuclear Reactors

3) As organic liquids contain carbon, their neutron age is considerably less than the neutron age of water (in the case of one and the same hydrogen concentration). This property of organic liquids (especially $(CH_3)_2 CHCH_2CH_2OH$) will probably play a more important part in future, if these liquids are intended to be used as a protective biological shield for reactors of small dimensions. 4) In order to obtain more accurate results, which are necessary for comparison, it is advisable to use fuel elements with lower uranium enrichment in reactors with organic moderators. The following persons assisted in the experimental part of this investigation: Ye. A. Plaksin, V. M. Fedorov, L. A. Geraseva and V. V. Vavilov. Professor A. K. Krasin suggested that this investigation be carried out, and he also discussed the results obtained. Ye. I. Inyutin, P. A. Palibin and V. P. Shelud'ko assisted in preparing the work of measurement. There is 1 table.

SUBMITTED: January 6, 1959

Card 3/3

KAMAYEV, A.V.; DUBOVSKIY, B.G.; VAVILOV, V.V.; POPOV, G.A.;
PALAMARCHUK, Yu.D.; IVANOV, S.P.

[Experimental study of the effects of interaction of two
subcritical reactors] Eksperimental'noe izuchenie ef-
fektov vzaimodeistviia dvukh podkriticheskikh reaktorov.
Moskva, Glav. upr. po ispol'zovaniiu atomnoi energii,
1960. 10 p.   (MIRA 17:1)

Dabovskig, R.G.

PHASE I BOOK EXPLOITATION   807/3337

Panasenkov, Ye. I., ed.

Laidennaja kriticheskih parametrov reaktornykh sistem; sbornik statey (Study of Critical Parameters of Reactor Systems; Collection of Articles) Moscow, Gosatomizdat, 1960, 117 p. Errata slip inserted. 3,600 copies printed.

Tech. Ed.: N.A. Vlasova.

PURPOSE: This collection of articles is intended for nuclear physicists and engineers of nuclear power plants.

COVERAGE: The book contains previously unpublished original articles concerned with the theoretical calculation of reactors (i.e. ... of critical parameters (critical masses and volumes) of various reactor systems ... uranium-beryllium, and water mixtures of ... and plutonium. Individual articles furnish tables and graphs used in the determination of the degree of critical parameters and the relative ... the character of the fissionable material and the moderator, as well as on fuel enrichment, for a wide range of neutron energy spectra. The following are mentioned: P.I. Gerdtick (scientific editor of the collection), and G.I. Marchuk, I.I. Spikins.

TABLE OF CONTENTS:

A. Ye. Eronin, B.P. Kouchin and V.O. Vladimirov (compilers of Table I, table of values of coefficient b2 and b3). References accompany individual articles.

Marchuk, G.I., Exact Solutions of the Single-Velocity Kinetic Equation and Their Use in Solving Diffusion Problems (the Perturbed Diffusion Method)

Marchuk, G.I., and V.P. Kochergin. The Approximation Method of Calculating the Critical Masses of Reactors With an Infinite Reflector

Sumnikov, B.A., The Use of Iron Approximation in the Method of Spherical Harmonics

Marchuk, G.I., G.A. Ilyasova, V.Ye. Kolesov, V.P. Kochergin, I.I. Elustenko, and Yu. I. Fadellina. Critical Masses of Uranium-Graphite Reactors

Marchuk, G.I., G.A. Ilyasova, V., Ye. Kolesov, V.P. Kochergin, I.I. Elustenko, and Yu. I. Fadellina. Critical Masses of Uranium-Beryllium Reactors

Marchuk, G.I., G.A. Ilyasova, V. Ye. Kolesov, V.P. Kochergin, I.I. Elustenko, and Yu. I. Fadellina. Critical Masses of Aqueous Mixtures of Compounds of Uranium and Plutonium

Lagutina, V.O., Interaction of Systems of a Fissionable Substance in a Scattering Medium

Kazachkovskiy, O.D., ...

Komarov, A.V., B.P. Dobrynin, V.I. Vecher, O.A. Popov, Ph.D., L.V. Komarova, and I.P. Ivanov. Experimental Study of the Interaction Effects of Two Subcritical Reactors

Marchuk, G.I., I.O. Dobrynin, V.L. Smelov, and S.I. Mikhailov. The Design of Sectionalized Nuclear Plants

AVAILABLE: Library of Congress

Card 3/5

21.1900

AUTHORS: Glazkov, Yu. Yu., Dubovskiy, B. G., Kuznetsov, F. M.,
             Semenov, V. A., Pen Fan

TITLE: Study of thermal-neutron spectra in physical reactors by
             means of monochromators

PERIODICAL: Atomnaya energiya, v. 10, no. 4, 1961, 381-383

TEXT: The experiments described in this "Letter to the Editor" were
carried out in a uranium-graphite reactor, in the center of which a
sub-critical assembly was installed. In order to determine the optimum
diameter of the sub-critical assembly, the experiments were made at
different diameters of the assembly. The monochromators used for the
purpose were designed for measuring thermal-neutron spectra in physical
low-power reactors (of. A. P. Senchenkov, F. M. Kuznetsov, Atomnaya
energiya, 5, vyp. 2, 124 (1958)). The number of neutrons recorded by the
detector per second was calculated from the relation

$$N = \frac{n(v_0)v_0}{4} \frac{1}{2\pi} Sdh \frac{d}{H} \frac{S}{L} \frac{h}{L} \frac{v_0^2 \eta \delta}{(\omega r_{op})^2} \nu \frac{n}{60} ,$$

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where N is the number of counts of the detector per second, $n(v_0)v_0$ the neutron flux in the center of the reactor per unit interval of velocity, n the speed of the rotor per minute; S, L, and h are the width, length, and height of the collimator; d is the width of the rotor gap, H the length of the rotor, r_{op} the distance between the axis and the center of the rotor gap, y the number of rotor gaps, $v_0 = \omega r_{op}/\alpha_0$ the velocity of fission neutrons for a given angle of rotation α_0 and a given angular velocity ω of the rotor, η the efficiency of the detector for neutrons of velocity v_0, and δ a coefficient accounting for the absorption of neutrons of velocity v_0 in air. The resolution of the monochromator is given by

$$\frac{\Delta v}{v_0} = \frac{v_0}{\omega r_{op}}\left[\frac{S}{L} + \frac{1}{3}\frac{d}{H} + \frac{1}{4}\frac{h}{r_{op}}\left(1 + \frac{H}{L}\right)\frac{\omega r_{op}}{v_0}\right],$$

where Δv is the half-width of the resolution curve and $S/L + d/3H$ the half-width of the statistical transmission curve. The resolutions of the

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monochromator for $\omega = 5000$ rpm are compiled in a table. The medium column gives the neutron energy. Uranium enriched to 1.2 % was used in the sub-critical assembly, whereas the uranium used in the outer zones of the reactor was enriched to 2 % (see Fig. 1). The neutron spectrum was taken for three different sizes of the central sub-critical assembly. These spectra, as well as the neutron distribution in a lattice consisting entirely of working channels with uranium enriched to 2 %, vary only slightly. All of them attain a maximum at $v_0 = 3$ km/sec and drop to zero at 7 - 8 km/sec. Fig. 3 shows the temperature of the neutron gas versus the number of working channels with uranium enriched to 1.2 % in the sub-critical assembly. It is seen that the spectrum of the assembly having 37 cells is equal to that of a critical assembly consisting of working channels only. The authors tested assemblies with 13, 25, and 37 cells. The assembly having 37 cells had an equivalent radius of 68 cm, the moderation length was 17 cm, and the diffusion length was 14 cm. Such a monochromator can therefore be used to determine thermal-neutron spectra in low-power reactors. The effective temperature of the neutron gas can be calculated with an error of ± 4 %, provided the spectrum
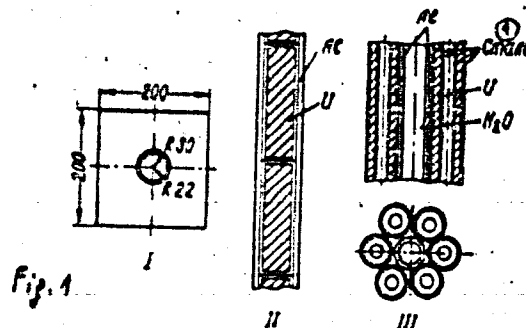
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Study of...

deviates only slightly from the Maxwellian spectrum. There are 3 figures, 1 table, and 1 Soviet-bloc reference.

SUBMITTED: December 7, 1960

Legend to Fig. 1: I - cell;
II - channel with uranium
enriched to 2 %; III - channel
with uranium enriched to 1.2 %;
1) steel.

Fig. 1

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8/089/61/011/001/001/010
B102/B214

2 1,1000

AUTHORS: Glazkov, Yu. Yu., Geraseva, L. A., Dubovskiy, B. G.,
             Krasin, A. K., Kisil', I. M., Kuznetsov, F. M., Serebrennikov,
             Yu. M., Shelud'ko, V. P., Sharapov, V. N., Pen Fan

TITLE: Investigation of the physical characteristics of the lattice
             of a uranium - graphite reactor by means of a subcritical
             insert

PERIODICAL: Atomnaya energiya, v. 11, no. 1, 1961, 5-11

TEXT: This paper gives a description of the experiments carried out since
the beginning of 1958 to investigate the physical characteristics of the
lattice of a uranium-graphite reactor by means of a subcritical insert.
A quadratic lattice (period 200 mm) was studied; the graphite block was 2.2 m
high and had a diameter of 4 m; its holes had diameters of 44 or 75 mm
depending on the uranium rods used. Above and below were reflectors, 60 cm
thick; the dimensions of the side-reflector could be varied according to
the composition of the core. The inner and the outer parts of the core

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were different: The inner part had always rods of 2%-enriched uranium,
and the outer one the subcritical insert as a part of the lattice of the
reactor studied. The rods of the natural as well as the 2%-enriched
uranium were 1 m long. To measure the lattice parameters of a reactor of
the type Beloyarskaya GRES (Beloyarsk State Regional Electric Power Plant)
ring-shaped sections (1 m long) of the fuel element (up to 1.2 %
enriched uranium) simulating the real elements were built in the subcritical
insert. Each fuel element channel contained six such elements arranged
round a central tube. The reactor of the GRES also had vaporization and
steam-superheating channels; these were simulated by having the central
tube filled with water for the former, and having it without water for the
latter. The characteristics of the systems studied were as follows:

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Investigation of the ...
Inner part of the core (subcritical insert)   Outer part of the core

Number of fuel elements		Equivalent radius, cm	Number of the uranium rods with 2% enrichment	Equivalent radius of the whole core, cm
44	ring-shaped elements up to 1.2% enriched; uranium rods 120 cm long	75	173	161
21	the same; rods only 100 cm high	32	124	151
13	"	41	134	140
5	"	54	126	132
1	"	57	113	122
25	rods of natural uranium 35mm thick	25	161	149
homogeneous lattice	—	—	126	113

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B???/3???

Investigation of the ...

In order to be able to assure the ... characteristics with the subcritical insert the ... ... in the central part of the insert must be characteristic of the reactor. This is accomplished by a suitable choice of the dimensions of the insert, and it is verified by measuring the cadmium ratio or the relative density of the thermal and resonance neutrons. The spectrum of the thermal neutrons in the center of the insert as depending on the dimensions of the insert was determined by measuring the neutron temperature according to one of the following methods depending: boron filter method, filter method, direct measurement by means of a monochromator. The neutron temperatures for the insert of 13 and 25 rods were found to be $370\pm15°K$ (first method), and $346°K$ and $318°K$ (third method). Also, the resonance escape probability in U^{238} (φ), the fast fission factor (μ), and the thermal utilization factor (θ) as well as the cadmium ratio R_{Cd}^i, for U^{235} (R_{Cd}^5) for copper (R_{Cd}^{Cu}) and for gold(R_{Cd}^{Au}) were determined.

The results are given in Table 5. The results of the experimental and theoretical determinations of μ are the following:

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Position of the channel	Value of μ	
	experimental	theoretical
Central channel of an insert of 21 channels with water	1.040±0.006	1.033
One channel with water in the center of a thermal graphite column of 70 cm diameter	1.036±0.005	1.030
Central channel of an insert of 21 channels without water	1.042±0.006	1.035

Q for the GRES type reactor was found to be 0.64 (for channel with water) and 0.65 (without water). It was found that, in order to adjust the neutron spectrum in the center of the subcritical insert so that it is characteristic of the given uranium - graphite lattice, it is necessary so to choose the dimensions of the insert so that its equivalent radius is

$\sim 3(\sqrt{\tau + L^2})$ cm ($\sqrt{\tau}$ is the slowing down length in the moderator and L the diffusion length). To measure μ it is sufficient to arrange one cell of the lattice under study in the center of the reactor with 2% enriched uranium. The authors thank Ye. F. Makarov, G. M. Vladykov, G. I. Sidorov,

Card 5/8

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B102/B214

Investigation of the ...

V. N. Fofanov, V. V. Vavilov, V. A. Semenov, A. N. Galanin, M. V. Bakhtina, M. K. Timonina, A. T. Anfilatov, Yu. S. Ziryukin, Yu. I. Starykh and A. P. Dolgolenko for collaboration; and A. V. Kamayev, M. Ye. Minashin, G. Ya. Rumyantsev and I. G. Morozov for their interest and discussions. There are 3 figures, 4 tables, and 12 references: 8 Soviet-bloc and 4 non-Soviet-bloc. The three references to English-language publications read as follows: M. Küche. Nucl. Sci. Engng. 2, No. 1, 96 (1957); D. Klein et al. Nucl. Sci. Engng. 3, No. 4, 403 (1958); J. Volpe et al. Nucl. Sci. Engng. 5, No. 6, 360 (1959).

SUBMITTED: December 12, 1960

Legend to Table 3: 1) number of the cells in the insert, 2) homogeneous lattice, 3) construction of the elements and enrichment of the uranium, 4) ring-shaped elements with water, 1.2%, 5) idem, 6) the same without water, 7) 35 cm thick rods of natural uranium, 8) 35 mm thick rods of 2% enriched uranium, 9) experimental, 10) calculated, 11) in the fuel element (according to fragment accumulation), 12) in the graphite of the central cell, 13) in the fuel element. *calculated according to V.V. Orlov; **in agreement with the measurements of M.B. Yegiazarov.

Card 6/8

KISIL, I. M.; DUBOVSKIY, B. G.; KAMAYEV, A. F.; GERASEVA, L. A.; GLAZKOV, Yu. Yu.

"The Role of Critical Experiments in Designing the First Atomic Power
Station and the Beloyarsk Atomic Power Station."

Report presented at the IAEA Symposium on Exponential and Critical
Experiments, Amsterdam, Netherlands, 2-6 Sep 63.

ACCESSION NR: AP4006629   S/0089/63/015/006/0481/0485

AUTHORS: Glaskov, Yu. Yu.; Dubovskiy, B. G.; Ilyasova, G. A.;
    Kozlov, V. I.; Smelov, V. V.; Sharapov, V. N.

TITLE: Measuring slow-neutron spectra on a physical stand of the
    reactor at the Beloyarsk State Regional Power Plant imeni
    I. V. Kurchstov

TOPIC TAGS: slow neutron, slow neutron spectrum, neutron flux
distribution, neutron spectrum, neutron flux, energy spectrum,
time of flight method

ABSTRACT: The flight time method has been used to measure the
energy spectra of slow neutrons on the boundary between cells and
on a hot channel surface. The lattice of the subcritical flacility
in which the measurements have been made is similar to the reactor
lattice of the Beloyarsk atomic power plant. The facility under
study, measuring 100 x 100 x 100 cm, was placed in the center of the
stand-type uranium graphite reactor core. Channels containing 2%-

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ACCESSION NR: AP4006629

enriched uranium were placed along the core perimeter, and the facility was filled with channels containing 1.2%-enriched uranium. The measurements were made for two different facilities, with and without water, in the central tubes and heat-releasing elements of the hot channels, and the spectra were measured by a mechanical selector. The time separation of the impulses took place in 128-channel analyzer, with each channel measuring 32 microseconds in width. A chamber made of stainless steel 1X18H9T and filled with He^3 to a pressure of 18 Atms was used as a neutron detector. The energy distribution of the neutron flux found by processing the experimental data are shown in the enclosure, Fig. 3. The experimental spectra were compared with the rated spectra on the outer boundary of the cell and the spectra on the boundary between the graphite and uranium zones. The rated values were "cross linked" with the experimental ones in the moderation region on the boundary between the cells. The comparison thus included both the energy and spatial distribution, and the results appear to agree with the experimental data.

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ACCESSION NR: AP4006629

"The authors express their gratitude to L. A. Matalin for the development and construction of the time analyzer, to P. S. Klemashev for designing the mechanical interrupter, and to V. V. Orlov and A. G. Novikov for their useful comments."
Orig. art. has: 3 Figures and 3 Formulas

SUBMITTED: 27Apr63 ·   DATE ACQ: 07Jan64   ENCL: 02

SUB CODE: NS   NR REF SOV: 005   OTHER: 002

ASSOCIATION: none

Card 3/3

DUBOVSKIY, B. G.; KAMAYEV, A. V.; VLADYKOV, G. M.

"Critical parameters of uranium salt aqueous solutions and nuclear safety."

report submitted for 3rd Intl Conf, Peaceful Uses of Atomic Energy, Geneva,
31 Aug-9 Sep 64.

EWT(e) EWP(n)-2/EWG(s)/BJR

ACC NR AP4012260

...skiy, B. G., Kamayev, A. V. ...

...Z. Palamarchuk, Yu. D. ...

... of supcritical reactors ...

Atomnaya energiya, v. 15, no. 1. ...

TOPIC TAGS: subcritical reactor interaction, reactor safety estimation, fission ... equivalent reactor dimension

The purpose of the present work ...
...tion of interacting systems ...
...used to provide a safety margin ...
...nable materials The method ...
... This method, in essence ...
... assemblies with specific ...
... replaced by a nuclear reactor ...

... reliable
... This
... and trans-
... developed
... that a set
... para-
... buckling

NNR AP4012269

... nuclear characteris... In...   ...eraction
...ssembly in a three dimensi...   ... (enclosure).
... he computation are found ...   ... experiment-
...ing in all cases a safety margin   ...aterial to
...for valuable comments ...   ...es and 1 table.

... None

...Nov82   ...001

AP   NR REF SON 1... 002

...vskiy, B. G.; Kamayev, A. V.; Kuznetsov, ...ly'kov, ... M.;
... Palamarchuk, Yu. D.

...al parameters of aqueous salt solution. ...

...yn energiya, v. 16, no. 1, 1964, ...-...

...eriments designed to determine the cri...cal ... ... aqueous salt
...KO.)), with 90% enriched uranium were made ... ... .n the shape
...ylinders and rectangular parallelepipeds, ...t water ro-
...anium concentration in aqueous salt solut... ... ... 36 to 460
...rresponds to a change in the ratio of hyd... ... ..., to nuclei
... 700 to 50. In the case of the spherical ...a... ...a cri.tical mass
... volume were also determined through correlat... ... ...e geometric
... the cylindrical and rectangular-parallelep... ...ers with those

AP4012261   C

... reactor. This method gives results ... ... :10% for
... water reflectors and +5% for solutions ... ... The
... steel bottom of the parallelepiped on the ... ... height of the
... presence of a water-reflector was studied ... ... the thickness
of the steel **between the core and water reflector from 3 to 47 mm. It is pointed**
... ation, that the results of the critical ... ... used to
... critical parameters of reactor cores ... ... eres, cyl-
... angular parallelepipeds containing a ... ... solutions of
... minimum critical parameters of the aqueous solutions of the
... obtained by transformation of the geometric ... ... have the
... se: critical volume, 8.4 liters; critical ... ... 85 kg;
... infinite cylinder, 16.7 cm, thickness of ... ... late, 6.9
... ... has: 6 figures, 5 formulas, 1 table.

... none

... Nov62   ENCL: 00   ... ... RP

... ...   OTHER: 001

VLADYKOV, G.M.; DUBOVSKIY, B.G.; KAMAYEV, A.V.; SVIRIDENKO, V.Ya.; KUZNETSOV,
F.M.; POPOV, G.A.; PALAMARCHUK, Yu.D.

Efficiency of heterogeneous absorbers in homogeneous uranium-water
reactors. Atom. energ. 19 no.1:14-19 Jl '65.

(MIRA 18:7)

DUBOVSKIY, G. K., Cand Biol Soi -- (diss) "Poouliarities of the
Biology of the Principal Inseots Damaging Alfalfa under Conditions
of Samarkandskaya Oblast and Measures for Their Control." Samar-
kand, 1957. 14 pp (Min of Higher Education USSR, Usbek
State Univ im Alisher Navoi), 100 copies (KL, 49-57, 112)

- 21 -

USSR / General and Special Zoology.   Insects.   Harmful   P
       Insects and Arachnids.   Pests of Forage Cultures.

Abs Jour: Ref Zhur-Biol., No 14, 1958, 64036.

Author : Dubovskiy, G. K.   Coloophora cartilaginella
Inst   : Not given.
Title   : The Poa Aphid and the   Chlophora ~
          on Alfalfa
Orig Pub: Zashchita rast. ot vredit. i boleznoy, 1957,
          No 4, 37-38.

Abstract: Acyrthosiphon onobrychis hibernates in the egg
          phase (females, and in warm winters the larvae
          too) in Samarkandskaya oblast'. There are many
          aphids in the spring, but their numbers decrease
          sharply in summer because of the effect of high
          temperatures, predators and parasites. The Coloo-
          phora cartilaginella caterpillars mine leaves,

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USSR / General and Special Zoology. Insects. Harmful   P
         Insects and Arachnids. Pests of Forage Cultures.

Abs Jour: Ref Zhur-Biol., No 14, 1958, 64066.

Abstract: Live in jackets, pupate on stems and develop
          in two generations. Dusting with DDT and BHC
          is not effective against moths. It is necessary
          to alternate the economic utilization of the
          lucerne for hay and for seeds. -- A. P. Adrianov.

Card 2/2

USSR / General and Special Zoology. Insects. Harmful   P
      Insects and Arachnids. Posts of Forage Cultures.

Abs Jour: Ref Zhur-Biol., No 14, 1958, 64065.

Author : Dubovskiy, G. K.
Inst   : Uzbeck University.
Title   : The Biology of Aphids Causing Damage to Alfalfa
          in Samarkandskaya Oblast'.

Orig Pub: Tr. Uzb. un-t, 1957, vyp. 57, 113-121.

Abstract: The nutrition, development cycle and capacity
          to hibernate in the adult phase of three aphid
          species, constantly causing damage to alfalfa in
          Samarkandskaya oblast' of the UzSSR: the pea
          Acyrthosiphon onobrychis, the alfalfa or acacia
          Aphis medicaginis and the warty aphis Therio-
          aphis ononidus. Predators and parasites of those
          species are indicated. Bibliography of 19 titles.
          -- M. N. Kovaleva.

Card 1/1

USSR / General and Special Zoology. Insects. Harmful   P
Insects and Arachnids. Pests of Forage Cultures.

Abs Jour: Ref Zhur Biol., No 14, 1958, 64071.

Author : Dubovskiy, G. K.
Inst   : Uzbeok University.
Title   : The Alfalfa Chaloid Wasp and Measures for its
          Control.

Orig Pub: Tr. Uzb. un-ta, 1957, vyp. 67, 135-128.

Abstract: Damage to the chaloid wasp in Samarkandskay
          oblast' to alfalfa seeds from the first crop
          was 12.3-33.4%, from the second crop - 25.9-49.7%.
          When the protective measures are not fulfilled,
          the seed crop decreases to 12-30 kg/ha. Srucho-
          phagus roddi develops in four and, possibly, five
          generations. The mass flight of the first gen-
          eration in 1955 took place in 12-16 June. The

Card 1/3

USSR / General and Special Zoology. Insects. Harmful   P
        Insects and Arachnids. Pests of Forage Cultures.

Abs Jour: Ref Zhur-Biol., No 14, 1958, 64071.

Abstract: females deposited their eggs in the green pods
         of the first alfalfa crop and the early-matur-
         ing females deposited their eggs in the pods
         of the second crop of the overripe forage and
         wild alfalfa. The alfalfa pods of the first
         crop are damaged by two chalcid wasp genera-
         tions. The mass flight of the second generation
         takes place on 5-10 July and of the third gener-
         ation, the most numerous infesters of the al-
         falfa pods of the second crop on 3-10 August.
         The percentage of the diapausing larvae of the
         first generation was about 1; of the second 2-5;
         of the third 4.8-10.6, and at the end of August
         - the middle of September, more than 50. Accord-

Card 2/3

USSR / General and Special Zoology.   Insects.   Harmful   P
          Insects and Arachnids.   Pests of Forage cultures.

Abs Jour: Ref Zhur-Biol., No 14, 1958, 64071.

Abstract: ing to experimental data for 1955-1956, dusting
          of seed alfalfa in the bud phase with 12% BHC
          (20 kg/ha) diminished by 5-7 times the damage
          caused to the seeds. -- A. P. Adrianov.

Card 3/3

54

DUBOVSKIY, G.K.

Tychius ticks, the pests of seeded alfalfa and means of control in
Samarkand. Dokl. AN Uz. SSR no.2:59-62 '58.   (MIRA 11:5)

1.Institut zoologii i parazitologii AN UzSSR. Predstavleno
chlenom-korr. AN UzSSR V.V. Yakhontovym.
               (Samarkand--Ticks) (Alfalfa--Diseases and pests)

DUBOVSKIY, G.K.

Analysis of the efficacy of some measures in the control of alfalfa
pests in Samarkand Province. Trudy UzGU no. 87:245-266 '59.
(MIRA 14:5)
(Samarkand Province—Alfalfa—Diseases and pests)

DUBOVSKIY, G.K.

Cicadas injuring corn in eastern Fergana.   Zool. zhur. 41 no.6:
870-874 Je '62.   (MIRA 15:7)

1. Department of Zoology, State Pedagogical Institute of Andijan.
                         (Fergana—Cicada)
          (Fergana—Corn (Maize)—Diseases and pests)

DUBOVSKIY, G.K.

Carrot-injuring cicadas. Nauch. dokl. vys. shkoly; biol. nauki
no.3:21-22 '63.   (MIRA 16:9)

1. Rekomendovana kafedroy zoologii Andizhanskogo pedagogicheskogo
instituta.
(Uzbekistan—Cicada)
(Uzbekistan—Carrots—Diseases and pests)

DUBOVSKIY, G.K.

Cicads occurring in alfalfa fields of eastern Fergana. Zool.
shur. 42 no.6:835-840 '63.   (MIRA 16:7)

1. Department of Zoology, State Pedagogical Institute of
Andizhan.
        (Fergana—Alfalfa—Diseases and pests)
                (Fergana—Cicada)

DUBOVSKIY, G.K.

Leafhoppers injurious to cotton. Uzb. biol. zhur. 8 no.2:
38-41 '64.   (MIRA 17:9)

1. Andizhanskiy pedagogicheskiy institut.

DUBOVSKIY, G.K.

Supplement to V.N.Kuznetsov's work "A note on Cicada (Homoptera)
collected by Prof. D.N.Kashkarov in the Arslan-Roba region."
Uzb. biol. zhur. 8 no.4:67-70 '64.   (MIRA 18:7)

1. Andizhanskiy gosudarstvennyy pedagogicheskiy institut.

DUBOVSKII, G.K.

Cicadas injuring cereals and forage grasses in eastern Fergana.
Zool. zhur. 43 no.10:1560-1563 '64.   (MIRA 17:12)

1. Chair of Zoology, Pedagogical College of Andizhan.

DUBOVSKIY, G.K.

Two new species of Derbidae (Homoptera) from the Fergana Valley.
Zool. zhur. 44 no.5:773-774   65.   (MIRA 18:6)

1. Kafedra zoologii Andizhanskogo gosudarstvennogo pedagogiche-
skogo instituta.

AUTHOR: Dubovskiy, I. Kh., Candidate of Technical Sciences (Central
             Boiler and Turbine Institute).

TITLE: Results of investigations of the operation of the heating
             surfaces of a boiler type TP-240-1. (Rezultaty issledovaniya
             raboty poverkhnostey negreva kotla TP-240-1)

PERIODICAL: "Teploenergetika" (Thermal Power), 1957, Vol. 4, No. 6,
             pp. 7 - 11 (U.S.S.R.)

ABSTRACT: Boiler set type TP-240-1 of the 'Krasnyy Kotel'shchik' Works
             is designed for a pressure in the drum of 185 atm. a super-
             heated steam temperature of 555 ^{0}C, and an output of 240 tons/h
             with a feed water temperature of 228 ^{0}C. After passing through
             the high pressure cylinder of the turbine the steam at a press-
             ure of 34 atm. and a temperature of 350 ^{0}C is returned to the
             boiler for reheat to a temperature of 525 ^{0}C. The design of
             the boiler is described in some detail with particular refer-
             ence to the different brands of steel used for different parts.
                The primary superheater consists of three sections,
             radiation, screen and convection connected in series. The
             tubes of the radiation superheater are made of steel 15XM..
             The external loops of the screen part of the superheater are
             made of steel ЭИ-257 and the remainder of steel 15XM. The
             convection part is made of austenitic steel ЭИ-257. Super-
             heated steam is withdrawn from the collector by two steam pipes

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Results of investigation of the operation of the heating surfaces of a boiler type TP-240-1. (Cont.)

of steel ЭИ-257. On the lines after the superheater there are two injection type steam coolers in which steel ЭИ-257 was not used because it is sensitive to water. The tubes of the reheater are made of 15ХМ steel.

Because of the high steam conditions and the use of radiation and intermediate superheaters and the special requirements in respect of cooling and heating of steam pipes made of austenitic steel ЭИ-257 special conditions are laid down for heating up the boiler. It was intended to use a pump taking water from the front drum and forcing it to the outlet collector of the convection section of the primary superheater during lighting up. This proved too complicated and condensate was too long in contact with pipes of austenitic steel ЭИ-257. On lighting up for the first time it was found that the primary and reheat superheaters could be reliably cooled by the steam from the boiler. After passing through the primary superheater the steam is used to heat up the steam piping and the reduction and cooling installation. After passing through this, steam at a pressure of 7 atm. is used to cool the reheater and to heat up its steam pipes.

An important question of lighting up conditions is the behaviour of the high pressure steam pipes to avoid a considerable temperature difference between the inside and outside surfaces. The rate of heating of steam pipe is limited to 1° a minute. Large steam valves are drained during heating

Results of investigation of the operation of the heating
surfaces of a boiler type TΠ-240-1. (Cont.)

to avoid accumulation of condensate.

The temperature conditions in the tubes of the convective
part of the primary superheater during lighting up of the
boiler are represented graphically.

The temperature conditions in the superheaters are then
considered, and the specific heat absorption of the elements
of the superheater are plotted as functions of the thermal load
on the boiler. With boiler loads of 190 to 240 tons/h changes
in the conventional superheated steam temperature (that is the
temperature that would exist if the steam coolers were dis-
connected) are relatively small because of the presence in the
superheater of radiation and screen sections. Variations in the
conventional superheat temperature with constant load on the
boiler are due to variations in furnace conditions and varia-
tions in the amount of saturated steam removed from the boiler
drum. Temperature variations of the steam in the first stage
of the reheater and a sharp rise in the second stage in the
middle of the flue gas pass are to be noticed. The maximum
temperatures in the coils of the second stage exceed the
temperatures in the extreme coils by 60 to 70 $^\circ$C, and the
temperature drop in the middle coil of the first stage is 15
to 25 $^\circ$C. The cause of the very non-uniform temperature in the
second stage is the high temperature of the steam before it
(400 $^\circ$C).

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Results of investigation of the operation of the heating
surfaces of a boiler type TΠ-240-1. (Cont.)

Because of the construction of the reheater it is not
possible to inject feed water between the two stages. The
injection takes place beyond the reheater, which leads to
additional temperature increases in the superheater tube. There-
fore, the maximum temperature of the outside surface of the
tube may reach 580 °C, which is high for chromium-molybdenum
steel tubes. Variations in the reheat with constant load are due
to instability of steam flow and temperature at the exhaust from
the high pressure cylinder of the turbine and also to variations
in furnace conditions. A graph is given of the heat transfer
coefficient of the reheater. At a load of 240 tons/h the
experimentally determined value of the heat transfer coefficient
is 47 kcal/m²/hr °C which is 8% higher than the value calculated
by the works.

Operation of the tail end heating surfaces is then considered.
Because of the use of the reheater the gas temperature before
the economiser is relatively low so that the water is moderately
heated in it to 320 °C. The temperature distribution in the
economiser is described and a graph is given of the heat trans-
fer coefficient of the economiser as a function of the mean gas
velocity. At rated load the average heat transfer coefficient
is 70 kcal/m²/hr °C, which is 30% higher than the calculated
value. A graph is given of the temperatures of gas and air and
of the load on the air heater as a function of the load on the

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Results of investigation of the operation of the heating surfaces of a boiler type TN-240-1. (Cont.)

boiler. This shows that the hot air temperature at rated load is 250 to 260 °C against a calculated value of 273 °C. The outgoing gas temperature at the rated load is 165 - 170 °C.

Examination of the tail end heating surfaces shows that the economiser tubes are sufficiently clean. After two years of operation ash wear could be observed on the upper rows of tubes (except the first) in the upper section of the economiser. This occurred despite the moderate gas speed because of the high ash content of the fuel and also because of the insuffic- iently uniform distribution of the gas flow due to install- ation of a heat insulating barrier in the flue gas pass before the economiser. There are no visible ash deposits in the air heater except for a small number of tubes on the edges of the gas pass which are sometimes covered in ash.

It is concluded that in new boilers the steam temperature before the last stage of the superheater should be raised to approximately 500 °C and that an injection type steam cooler should be installed at this place which will reduce excess temperature in the coils and facilitate automatic control of superheat.

In new boilers it is also recommended to increase the steam temperature before the second stage of reheat to approximately 480 °C which will reduce the excess temperature in the coils.

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Results of investigation of the operation of the heating surfaces of a boiler type TП-240-1. (Cont.)

It is necessary to improve the design of the ceiling covering of the furnace and the lagging of the down-flow shaft of the boiler to eliminate air leaks.

6 figures, no literature references.

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SOV/96-59-2-7/18

AUTHORS: Dubovskiy, I.Kh., ,Candidate of Technical Sciences

TITLE: The Application of the Method of Similarity to the
             Design of Shaft Mills (Primeneniye metoda podobiya k
             raschetu shakhtnykh mel'nits)

PERIODICAL: Teploenergetika, 1959, Nr 2, pp 44-49 (USSR)

ABSTRACT: The method of designing shaft mills adopted in recent
             standards is of an empirical nature and so has its
             limitations. It can give rise to considerable errors
             in the design of new types of mills. By examination of
             the equations of motion of a fuel-air mixture the main
             criteria of similarity can be established and
             relationships formulated between the dimensional
             parameters of mill operation so providing a correct
             basis for solution of the problem. Conditions of
             similarity are then formulated for a system consisting
             of a mixture of fuel and air and the rotating beaters.
             It is shown that not all the criteria need to be taken
             into consideration. An expression is derived for the
             power consumption of the mill. No-load conditions in
Card 1/5   which the mill runs empty of fuel are then considered.

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The Application of the Method of Similarity to the Design of
Shaft Mills

A curve of the no-load power as a function of the
number of beaters is given in Fig 2 for a model axial
mill with a rotor diameter of 0.276 metres, length
0.334 metres and 2950 rpm. The curve also gives values
of the frontal resistance coefficient of the beaters as
function of their number calculated from Eq (10).
Values of the coefficient of frontal resistance of the
beaters in axial mills are given in Table 1. Mill output
is then examined analytically and formula (26) is
derived. Mill output curves calculated by this formula
are compared with experimental values for a number of
grades of lignite and coal in Fig 3 and 4. It will be
seen that the agreement is satisfactory. Power
consumption figures are then considered and it is
shown that there is an optimum speed for any given rotor
diameter but the curve of power consumption against
speed is a fairly flat one and quite a wide range of
speed can be used without excessively increasing power
consumption. Increasing the rotor speed usually
increases the no-load power and so increases the specific

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The Application of the Method of Similarity to the Design of
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power consumption unless the mill output is simultaneously
increased. For any given output it is advisable to raise
the speed and cut down the rotor diameter so far as
possible. The output of a mill operating on peat is
then considered and formula (28') is derived.
Experimental values are compared with values derived
from this formula in Fig 5 and it is seen that the
agreement is quite good and in 80% of the tests did not
exceed 16%. When milling peat the mill output is
proportional to the peripheral speed whilst when milling
coal it is proportional to the cube of the speed.
The maximum power consumption of mills is then
considered and an approximate formula is derived on the
basis of observations that the maximum relative power
decreased markedly as the peripheral speed is increased
and depends on the rotor diameter. Calculated and
experimental values of maximum relative power of axial
hammer-type mills are given in Table 2 and in most

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The Application of the Method of Similarity to the Design of Shaft Mills

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cases the agreement is very good. The table also includes test and calculated values of maximum mill-output and in 80% of the tests the difference is not greater than 14%. It is concluded that when milling coal the specific power consumption is practically independent of the peripheral speed of the rotor. Increasing the speed to 980 rpm with simultaneous reduction of the rotor diameter causes an appreciable reduction in specific power consumption. As the mill speed is increased the maximum relative power is reduced and, therefore, the maximum output increases proportional to the 1.6 power of the peripheral speed. When milling peat the specific power consumption is less at lower peripheral speeds and peripheral speeds of 40 to 50 m/sec are recommended for peat. The maximum

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The Application of the Method of Similarity to the Design of
Shaft Mills   SOV/96-59-2-7/18

        output of mills is almost independent of peripheral
        speed. There are 5 figures, 2 tables and 3 Soviet
        references.
ASSOCIATION:Tsentral'nyy Kotloturbinnyy Institut (Central Boiler
        Turbine Institute)

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DUBOVSKIY, I.Ye., kandidat tekhnicheskikh nauk.

Burning cut peat in high-pressure boiler furnaces. Elek.sta. 25 no.7:
6-11 Jl '54.
        (Furnaces) (Peat)   (MLRA 7:8)

SHEATS OF ADVANCED, TRIALS AND OPERA...
Dovehill, I.E.   (Energomashinostroenie) (For Mas...
...   This pulverized fuel-fired boiler has an out...
... ... 550°C with reheat to 525°C.   A detailed ...
Energomashinostroenie, Jan. 1956.   An account is ...
... ... on low grade Moscow Region coal and of ...

947. ...TION OF THE FUTURE OF ... ...
REPORT. ...dell, L.S. (Fo. ... ...
...communications (Pur Mech., Leningrad), ...
...re views and recommendations are made for the ... ...
...ler on Moscow Region seal, which sings ...

SCV/96-59-10-10/22

An Analysis of the Operation and Potentialities of Fan-type Mills

Eq (1) is then derived for the concentration of wet fuel
in the air. Some of the unknowns in this formula can be
derived from the graph of Fig 1 which gives test data
obtained on a fan mill type 1050/400/1460/8 running at
reduced speed. Eq (2) is then derived for the mill output
in tons per hour. Then the general equation (3) is
derived for the power consumption of the mill and Eq (4)
for the power consumption of a mill type 1050/400/1460.
Here, the power consumption of the fan mill is put in the
form of a sum of power consumption of the fan and that of
milling, the latter being about a quarter of the whole.
By way of example, a calculation is made of the output and
specific power consumption of a fan mill type 1050/400/
1460/8, with an air flow of 17000 kg/hr. The output is
found to be 10.5 tons per hour and the power consumption
6.15 kWh per ton. Dimensionless characteristics of mills
type 1550/520/960 obtained from published data and type
1050/400/1460 from data of the Central Boiler Turbine
Institute are plotted in Fig 2. Table 1 gives the
results of design calculations using formulae (2) and (4),
for four types of mills when operating on brown coal with

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An Analysis of the Operation and Potentialities of Fan-type Mills

outputs from 9 to 58 tons per hour at specific outputs of 22 tons per m² hour for each square metre of rotor section. Six fan mills type 2100/850/740 would suffice for a boiler raising steam at the rate of 800 tons per hour and burning reasonably soft brown and ordinary coal. Table 2 gives data from the VEB (German Democratic Republic) which shows that in milling brown coal the power consumption is 7-7.5 kWh/ton with mill outputs of 32 to 63 tons per hour. This is in satisfactory agreement with the calculated data of Table 1. The performance figures quoted are better than can be obtained with hammer mills. The wear rate of the manganese steel fan blades is of the order of 2.5 grams per ton of soft Rhine brown coal; the corresponding figure for hammer mills is about 20 grams per ton. It is concluded that for boilers of 400-900 tons per hour burning brown coal, fan mills should be used with a rotor peripheral velocity of about 80 m/sec, drying the fuel with a mixture of furnace gas and air. For boilers of steam output up to 230 tons per hour in which the fuel is dried by hot air the fan mills should be installed directly alongside the boiler and used at reduced rotor peripheral velocities of the order of 65 m/sec, so as to

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An Analysis of the Operation and Potentialities of Fan-type Mills

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give a relatively low specific power consumption with
a sufficiently high specific mill output.
There are 3 figures, 2 tables and 3 references, of which
1 is Soviet and 2 are German

ASSOCIATION: Tsentral'nyy kotloturbinnyy institut
(Central Boiler Turbine Institute)

DUBOVSKIY, I.Ye., kand.tekhn.nauk; KLIMOV, I.I., kand.tekhn.nauk

Method of calculating dust collectors and dust separators for
dust treatment installations. Energomashinostroenie 6 no.6:21-25
Je '60.   (MIRA 13:8)
                    (Dust collectors)